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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,778	02/06/2002	Mark R. Hansen	077077-9142-00	3583

7590 05/14/2004
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EXAMINER

CRENSHAW, MARVIN P

ART UNIT PAPER NUMBER

2854

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,778

Applicant(s)

HANSEN ET AL.

Examiner

Marvin P. Crenshaw

Art Unit

2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on the amendment filed on 02/06/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Sainio et al.

Sainio et al. teaches a color registration system (10) for a printing press having thereon a moving paper (12) substrate, said system comprising an area scanner (36) for acquiring an image of a paper substrate on a printing press and an image processing system (32) to receive the image and process the image to determine any color register error of the printing press, wherein said image processing system includes the use of a hardware based binary correlator adapted to locate register marks on the paper substrate.

With respect to the system having a binary correlator, Sainio teaches it because it is merely a calculating function for two variables or numbers or images for determining a certain value (See col. 2, Lines 10 – 35).

With respect to claim 3, the color registration control system (10) wherein the area scanner is a CCD (38) scanner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Katayama.

Sainio et al. teaches all that is claimed in the above rejection, as discussed in claims 1 and 3, except the use of a FPGA.

Katayama et al. teaches a color registration control system wherein the binary correlator is implemented on a FPGA (See col. 4, line 12 – 26).

It would have been obvious to modify the color registration system of Sainio et al. to have a binary correlator implemented on a FPGA as taught by Katayama to use an efficient way to process the image for color.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Zhang et al.

Sainio et al. teaches having a light (37) source generating illumination levels for the scanner. However, Sainio et al. does teach all that is claimed in the above rejection, as discussed in claims 1 and 3, except the use of a hardware based histogrammer.

Zhang et al. teaches an image processing system comprising the use of a histogrammer to process said illuminating levels and the hardware-based histogrammer calculating the gray scale histogram of the illuminating levels (See Col. 5, lines 12 – 26).

It would have been obvious to modify Sainio et al. to have a hardware based histogrammer as taught by Zhang et al. because it is very efficient in calculating the levels of illumination.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Zhang et al., as applied to claims 4 and 5, and further in view of Katayama. Sainio et al. as modified by Zhang et al. teach all that is claimed in the above rejection, as discussed in claims 1 and 3, except that the histogrammer would be implemented on a FPGA.

Katayama teaches the use of a FPGA (See col. 4, line 12 – 26). It would have been obvious to further modify Sainio et al. to have a FPGA as taught by Katayama because it is very efficient and precise in processing the color information when printing.

With respect to claim 6, it would be obvious that the histogrammer would be implemented on the FPGA because the FPGA is very efficient in processing the color information when printing.

Claims 7,8,9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Zhang et al.

Sainio et al. teaches a color registration control system (10) for a printing press having thereon a moving paper (12) substrate, said system comprising a camera (36) for acquiring an image of paper substrate on the printing press, a light (37) source adjacent

the camera and an image processing system (32) adapted to receive the image and process the image.

However, Sainio et al. doesn't teach the use of a hardware based histogrammer to analyze the illumination levels produced by the light source by producing a gray scale histogram of the illumination levels.

Zhang et al. teaches the use of a hardware based histogrammer (See Col. 5, lines 12 – 26) to analyze the illumination levels produced by the light source by producing a gray scale histogram of the illumination levels.

It would have been obvious to modify Sainio et al. to have a hardware based histogrammer as taught by Zhang et al. because it is very efficient in calculating the levels of illumination.

With respect to claim 8, Sainio et al. teaches a color registration control system where the light (37) source includes a strobe type light.

With respect to claim 9, Sainio et al. teaches the camera is a CCD (36) camera.

With respect to claim 11, Sainio et al. teaches wherein the image processing system further includes a hardware based binary correlator (32) adapted to process the acquired image.

Claims 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Zhang et al. as applied to claims 7,8,9 and 11 above, and further in view of Katayama.

Sainio et al. as modified by Zhang et al. teach all that is claimed in the above rejection, as discussed in claims 7,8,9 and 11, except the use of a FPGA.

Katayama teaches the use of a FPGA (See col. 4, line 12 – 26). It would have been obvious to further modify Sainio et al. to have a FPGA as taught by Katayama because it is very efficient and precise in processing the color information when printing.

With respect to claim 10,12 and 13, it would be obvious that the histogrammer and the binary correlator would be implemented on the FPGA because the FPGA is very efficient in processing the color information when printing.

Claims 14,15 and 18 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Katayama.

Sainio et al. teaches a color registration control system (10) for a printing press having thereon a moving paper (12) substrate, said system comprising an area scanner (36) for acquiring an image of the paper substrate and an image processing system (32) adapted to receive the image and process the image to determine an color register error.

However, Sainio et al. doesn't teach the image processing system includes a hardware-based correlator adapted to locate register marks on the paper substrate and implemented on at least one FPGA.

Katayama et al. teaches an image processing system includes a hardware-based correlator adapted to locate register marks on the paper substrate and implemented on at least one FPGA (See col. 4, line 12 – 26).

It would have been obvious to modify the color registration system of Sainio et al. to have a binary correlator implemented on a FPGA as taught by Katayama to use an efficient way to process the image for color.

With respect to claim 18 and 19, having one FPGA including two FPGAs and one FPGA includes a binary correlator for image processing and the other FPGA includes control and interface functions would be obvious to do by Katayama to separate the two FPGAs to have a central means for controlling the image registration and expediting the process.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sainio et al. in view of Katayama as applied to claims 14, 15 and 18 - 20 above, and further in view of Zhang et al.

Sainio et al. as modified by Katayama teach all that is claimed in the above rejection, as discussed in claims 14, 15 and 18 - 20, except the image processing system comprising the use of a histogrammer to process said illuminating levels and the histogrammer calculating the gray scale histogram of the illuminating levels.

Zhang et al. teaches an image processing system comprising the use of a histogrammer to process said illuminating levels and the histogrammer calculating the gray scale histogram of the illuminating levels (See Col. 5, lines 12 - 26).

It would have been obvious to further modify Sainio et al. to have a histogrammer as taught by Zhang et al. because it is very efficient in calculating the levels of illumination.

With respect to claim 17, the color registration control system wherein the components include a binary correlator implemented on the same FPGA on which the histogrammer

is implemented, would be obvious for efficiency in having the means for calculating the color registration of the image.

Conclusion

Response to Arguments

Applicant's arguments filed 02/04/2004 have been fully considered but they are not persuasive. Specifically, Sainio teaches the claimed matter of having a hardware based binary correlator.

With respect to having a hardware based binary correlator, Sainio teaches the use of an image processing system. And to one of ordinary skill in the art would know that an image processor, as taught by Sainio, would be programmed to allow the system to be able to detect color misregistration. The definition of hardware meets the claimed structure of what applicant's has claimed with the invention of Sainio.

With respect to applicant's claim of Katayama, he teaches the claimed subject of having a FPGA. With Sainio being modified by Katayama, Katayama teaches the FPGA that can be programmed by Sainio to detect the color misregistration. An FPGA is well known in the art to be used as an efficient processor for correction color in the art. Also, Katayama et al. was not relied upon to teach a paper substrate or a printing press, Sainio was relied upon to teach those applications.

With respect to applicant's claim of Zhang et al. teaching the use of a hardware based histogrammer, he does. Sainio as modified by Zhang et al., Zhang et al. teaches the hardware based histogrammer that is needed by Sainio to process the illuminating levels for color misregistration. Zhang histogrammer teaches to compute the grey scale

of the image transformed then affine parameters to transform the color appearance. It would have been obvious to one of ordinary skill in the art to combine Sainio with Zhang to efficiently calculate the illuminating levels for the best optimal color on the print out.

Conclusion

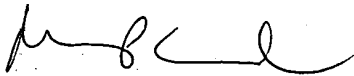
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marvin P. Crenshaw whose telephone number is (571) 272-2158. The examiner can normally be reached on Monday - Thursday 7:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MPC
May 12, 2004



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